IN THE CLAIMS

The current claims for this application are listed below.

1. (Currently amended) An apparatus comprising:

a therapeutic guidewire having a high strength proximal core section and flexible distal core section, the flexible distal core section having a tapered length and a distal plunge-ground length; and

at least one optical fiber disposed through the therapeutic guidewire, the optical fiber configured to ~~provide~~ sense and transmit diagnostic information from at least one of before, during, and after a therapeutic treatment.

2. (Original) The apparatus of claim 1 wherein the at least one optical fiber is exposed within a vasculature of a patient at least at one location along the therapeutic guidewire.

3. (Original) The apparatus of claim 2 wherein the at least one optical fiber is configured to sense vessel and blood characteristics.

4. (Original) The apparatus of claim 3 wherein the vessel and blood characteristics are selected from the group consisting of hemodynamic

characteristics, hematological parameters related to blood and blood components and thermal parameters of the vasculature.

5. (Original) The apparatus of claim 1 wherein the therapeutic guidewire is operatively coupled to a catheter.

6. (Currently amended) An apparatus comprising:

a therapeutic guidewire having a high strength proximal core section and flexible distal core section, the flexible distal core section having a tapered length and a distal plunge-ground length, the therapeutic guidewire configured to operatively receive a treatment device;

a polymeric jacket disposed about the distal core section; and

at least one optical fiber disposed within the therapeutic guidewire to sense and transmit vessel and blood characteristics.

7. (Original) The apparatus of claim 6 wherein the treatment device is selected from the group consisting of intravascular device, intraluminal device, intraductal device and intraorgan device.

8. (Original) The apparatus of claim 6 wherein the at least one optical fiber is movable within the therapeutic guidewire.

9. (Original) The apparatus of claim 6 wherein the at least one optical fiber is exposed within a vasculature of a patient at least at one location along the therapeutic guidewire.

10. (Original) The apparatus of claim 6 wherein the vessel and blood characteristics are selected from the group consisting of hemodynamic characteristics, hematological parameters related to blood and blood components and thermal parameters of the vasculature.

11. (Original) The apparatus of claim 6 wherein the therapeutic guidewire comprises:

an elongated guidewire body having a distal core section axially coupled to a proximal core section by a connecting member; and

an atraumatic distal tip formed at a distal end of the distal core section.

12. (Original) The apparatus of claim 11 wherein the therapeutic guidewire further comprises a flexible coil disposed about the distal core section of the

elongated guidewire body, the flexible coil coupled to at least one point along the distal core section.

13. (Original) The apparatus of claim 11 wherein the therapeutic guidewire further comprises a shaping ribbon coupled to the distal core section.

14. (Original) The apparatus of claim 11 wherein the at least one optical fiber is coupled to the elongated guidewire body at least at one point along thereon.

15. (Original) The apparatus of claim 11 wherein the at least one optical fiber is movable within the elongated guidewire body.

16. (Original) The apparatus of claim 11 wherein the distal core section has at least one opening to allow the optical fiber to be exposed to a vasculature of a patient.

17. (Original) The apparatus of claim 16 wherein the at least one optical fiber is configured to sense vessel and blood characteristics selected from the group consisting of hemodynamic characteristics, hematological parameters

related to blood and blood components and thermal parameters of the vasculature.

18. (Original) The apparatus of claim 5 wherein the at least one optical fiber is marked with a radiopaque substance.

19. (Original) The apparatus of claim 12 wherein the atraumatic distal tip includes a clear polymeric material sheath coupled to the distal end of the flexible coil.

20 (Original) The apparatus of claim 11 wherein the atraumatic distal tip is formed by using a metal.

21. (Previously Presented) The apparatus of claim 11 wherein the polymeric jacket is coupled to at least one point along an outer surface of the distal core section, the atraumatic distal tip coupled to a distal end of the polymeric jacket.

22. (Currently amended) A system for sensing vessel and blood characteristics, the system comprising:

a data processing system; and

an apparatus coupled to the data processing system, the apparatus comprising a therapeutic guidewire having a high strength proximal core section and flexible distal core section and at least one optical fiber disposed therein, the flexible distal core section having a tapered length and a distal plunge-ground length, the optical fiber capable to sense vessel and blood characteristics and transmit the sensed vessel and blood characteristics to the data processing system.

23. (Original) The system of claim 22 wherein the vessel and blood characteristics are selected from the group consisting of hemodynamic characteristics, hematological parameters related to blood and blood components and thermal parameters of the vasculature.

24. (Previously Presented) A method of sensing vessel and blood characteristics, the method comprising:

inserting into a vasculature of a patient, a therapeutic guidewire having a high strength proximal core section and flexible distal core section and at least one optical fiber disposed therein, the flexible distal core section having a tapered length and a distal plunge-ground length, the optical fiber configured to provide

diagnostic information from at least one of before, during, and after a therapeutic treatment;

advancing therapeutic guidewire to a desired location in the vasculature;

operating a data processing system coupled to the therapeutic guidewire such that light signals are transmitted to the desired location in the vasculature and reflected light signals are collected by the data processing system; and

processing the reflected light signals to provide vessel and blood characteristics.

25. (Original) The method of claim 24 wherein the vessel and blood characteristics are selected from the group consisting of hemodynamic characteristics, hematological parameters related to blood and blood components and thermal parameters of the vasculature.

26. (Previously Presented) The apparatus of claim 1, further comprising a polymeric jacket disposed about the distal core section.

27. (Previously Presented) The system of claim 22, further comprising a polymeric jacket disposed about the distal core section.

28. (Previously Presented) The method of claim 24, wherein a polymeric jacket is disposed about the distal core section.

29. (Previously Presented) An apparatus as in claim 1 wherein the optical fiber provides an image of an element from light gathered from the element, the light being conveyed through the optical fiber.

30. (Previously Presented) An apparatus as in claim 6 wherein the at least one optical fiber provides an image of an element from light gathered from the element, the light being conveyed through the at least one optical fiber.

31. (Previously Presented) A system as in claim 22 wherein the at least one optical fiber provides an image of an element from light gathered from the element, the light being conveyed through the at least one optical fiber.

32. (Previously Presented) A method as in claim 24 wherein the optical fiber provides an image of an element from light gathered from the element, the light being conveyed through the optical fiber.